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CLAIMS

1. (Amended) An R-T-B based sintered magnet having a
5 composition comprising:

27.0 mass% to 32.0 mass% of R, which is at least one of Nd,
Pr, Dy and Tb and which always includes either Nd or Pr;

63.0 mass% to 72.5 mass% of T, which always includes Fe and
up to 50% of which is replaceable with Co;

10 0.01 mass% to 0.08 mass% of Ga; and

0.85 mass% to 0.98 mass% of B,

wherein the magnet comprises a main phase with a tetragonal
 $R_2T_{14}B$ type crystal structure, which accounts for at least 90% of
the overall volume of the magnet, but includes substantially no
15 $R_{1.1}Fe_4B_4$ phases.

2. The R-T-B based sintered magnet of claim 1, further
comprising at most 2.0 mass% of M, which is at least one element
selected from the group consisting of Al, Si, Ti, V, Cr, Mn, Ni,
20 Cu, Zn, Zr, Nb, Mo, In, Sn, Hf, Ta and W.

3. (cancelled)

4. The R-T-B based sintered magnet of claim 1 or 2, having
5 an oxygen concentration of at most 0.5 mass%, a nitrogen
concentration of at most 0.2 mass%, and a hydrogen concentration
of at most 0.01 mass%.

5. A method for producing an R-T-B based sintered magnet,
10 the method comprising the steps of:

preparing a powder of an alloy that has a composition
comprising 27.0 mass% to 32.0 mass% of R (which is at least one
of Nd, Pr, Dy and Tb and which always includes either Nd or Pr),
63.0 mass% to 72.5 mass% of T (which always includes Fe and up
15 to 50% of which is replaceable with Co), 0.01 mass% to 0.08 mass%
of Ga and 0.85 mass% to 0.98 mass% of B;

compacting and sintering the alloy powder, thereby making
a sintered magnet; and

subjecting the sintered magnet to a heat treatment at a
20 temperature of 400 °C to 600 °C.

6. The method of claim 5, wherein the step of preparing the alloy powder includes the steps of:

- preparing a melt of the alloy;
- 5 rapidly cooling and solidifying the melt of the alloy by a strip casting process, thereby making a rapidly solidified alloy; and
- pulverizing the rapidly solidified alloy.